

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

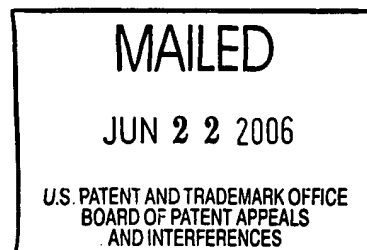
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KHOI PHAN, BHARATH RANGARAJAN and BHANWAR SINGH

Appeal No. 2006-1183
Application No. 09/553,841¹

HEARD: MAY 24, 2006²



Before HAIRSTON, BLANKENSHIP, and SAADAT, Administrative Patent Judges.

SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-23, which are all of the claims pending in this application.

We affirm.

BACKGROUND

Appellants' invention is directed generally to a method and apparatus for visually inspecting a semiconductor processing system. An image collector collects and displays images of the interior of an enclosed processing chamber for inspecting the chamber by a technician. An understanding of the invention can

¹ Application for patent filed April 21, 2000.

² Appellants presented arguments in a telephonic oral hearing as requested in a communication filed April 11, 2006.

be derived from a reading of exemplary independent claim 1, which is reproduced as follows:

1. A system that visually monitors semiconductor processing, comprising:

a develop chamber; and

an image collector located at least partially within the develop chamber, the image collector collects energy reflected from inside the develop chamber and transmits a signal indicative of interior of the chamber.

The Examiner relies on the following references:

Sanada et al. (Sanada)	5,843,527	Dec. 1, 1998
Ogata	6,313,903	Nov. 6, 2001 (filed Jan. 28, 2000)
Stern et al. (Stern)	6,603,874	Aug. 5, 2003 (filed Mar. 3, 2000)

Claims 1-3, 5-7, 10-12 and 15-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sanada and Ogata.

Claims 4, 8, 9, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sanada, Ogata and Stern.³

Rather than reiterate the opposing arguments, reference is made to the briefs and answer for the respective positions of Appellants and the Examiner. Only those arguments actually made by Appellants have been considered in this decision. Arguments

³ The rejection of claims 1, 2, 4, 6 and 13 under 35 U.S.C. § 102(b) as being anticipated by Batchelder (U.S. Patent No. 4,647,172) is not included in the answer and appears to be withdrawn by the Examiner. Any rejection not repeated and discussed in the answer may be taken by the Board as having been withdrawn. Ex Parte Emm, 118 USPQ 180 (Bd. App. 1957).

which Appellants could have made but chose not to make in the brief have not been considered (37 CFR § 41.37(c)(1)(vii)).

OPINION

In rejecting claims 1-3, 5-7, 10-12 and 15-23 under 35 U.S.C. § 103(a), the Examiner relies on Sanada for disclosing a monitoring system that monitors the spin coating process and transmits a signal indicative of the interior of the chamber (answer, page 3). The examiner further relies on Ogata for describing a processing unit having both coating and developing chambers and concludes that it would have been obvious to include the coater/developer chamber of Ogata in the processing system of Sanada in order to produce a complete fabrication system (answer, page 4).

Appellants argue that Sanada relates to visually monitoring only a coating process chamber and while Ogata teaches a unit that is both a coater and a developer, it is silent with regard to monitoring a develop process within a develop chamber (brief, page 5). The Examiner responds by stating that even if only the coating process is monitored in a chamber with the combination of the coating process and the development process, the claimed subject matter is met since claim 1 does not require that collected energy obtained by the image collector be related only to the developing process (answer, page 7). Appellants contend that the claimed image collector obtaining energy related to the developing process is not met by collecting energy reflected from only the coating chamber of Sanada in combination with the

coating/developing chamber of Ogata which lacks any monitoring system in the developing chamber (reply brief, pages 2-3).

Sanada describes a coating chamber in which a CCD camera provides images from the coating process inside the chamber (col. 27, lines 9-24; Figure 10). As recognized by the Examiner, Sanada describes using such camera in a coating chamber whereas Ogata teaches that the coating and developing is performed in the same chamber (col. 1, lines 5-37; Figure 13). Although Sanada describes an image collector only in a coating chamber, contrary to Appellants' position, we find that the combination of the applied prior art would have suggested providing a chamber for both coating and developing such that the images related to the developing portion of the chamber are also collected. An image collector in a coating/developing chamber, instead of only in a coating chamber, collects images from all the processes inside the chamber, including those in the developing portion of the chamber.

In fact, there is no need for either of the references alone to teach an image collector in a developing chamber since the rejection before us is not one of anticipation. The Examiner's rationale is consistent with Appellants' specification wherein the chamber is described as part of a processing unit such as a coater or a developer (page 5, lines 1-3) or any other enclosed wafer processing unit (page 5, lines 11-13). In fact, appellants' argument implying lack of suggestion for placing an

image collector in a develop chamber contradicts Appellants' disclosure indicating that the processing unit could be either of the coating or the developing unit while allowing all types of enclosed wafer processing units to be the subject of such monitoring.

We also observe that Ogata contains teachings related to monitoring the develop chamber of a wafer processing unit, which has not been fully appreciated by the Examiner. In relation with Figures 1 and 2, Ogata describes the coating and developing unit 100 in which a pattern inspecting portion 4 is disposed in the wafer transferring portion 21 (col. 4, lines 38-42 and 56-59). Ogata further discloses that the pattern inspecting portion uses a CCD camera to inspect a resist pattern formed on a wafer that has been developed (col. 4, lines 59-63). Thus, Ogata also describes an image collector located within the develop chamber for collecting energy reflected from the developed wafer inside the develop chamber.

Based on our findings above, we agree with the Examiner that the combination of the prior art would have suggested the claimed subject matter to one of ordinary skill in the art. Accordingly, the 35 U.S.C. § 103(a) rejection of claims 1-3, 5-7, 10-12 and 15-23 as being unpatentable over Sanada and Ogata is sustained.

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Turning now to the 35 U.S.C. § 103 rejection of the remaining claims, we note that Appellant does not provide any separate arguments, allowing these claims to fall with independent claim 1.

In view of our discussion of claim 1 above, we also sustain the 35 U.S.C. § 103 rejection of claims 4, 8, 9, 13 and 14 over Sanada, Ogata and Stern.


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CONCLUSION

To summarize, the decision of the Examiner to reject claims 1-23 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED


KENNETH W. HAIRSTON
Administrative Patent Judge

HOWARD B. BLANKENSHIP
Administrative Patent Judge

MAHSHID D. SAADAT
MAHSHID D. SAADAT
Administrative Patent Judge

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